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A BIBLIOGRAPHY OF
AMERICAN NATURAL HISTORY

A Bibliography of American Natural History

The Pioneer Century, 1769-1865

*The Rôle Played by the Scientific Societies; Scientific Journals; Natural
History Museums and Botanic Gardens; State Geological and
Natural History Surveys; Federal Exploring Expeditions*
IN THE RISE AND PROGRESS OF AMERICAN BOTANY, GEOL-
OGY, MINERALOGY, PALEONTOLOGY AND ZOOLOGY

BY

MAX MEISEL, B.S., B.L.S.

Formerly of the Science Division, N. Y. Public Library

VOLUME I

An Annotated Bibliography of the Publications Relating
to the History, Biography and Bibliography of American
Natural History and its Institutions, during Colonial Times
and the Pioneer Century, which have been published up to
1924; with a Classified Subject and Geographic Index;
and a Bibliography of Biographies.

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"It seems too unfortunate, that we should allow the value of the labors of our predecessors to be depreciated, or to refer to the naturalists of the last century as belonging to the unscientific or to the archaic period. It has been frequently said by naturalists that there was no science in America until after the beginning of the present century. This is in one sense true; in another very false. There were then, it is certain, many men equal in capacity, in culture, in enthusiasm, to the naturalists of to-day, who were giving careful attention to the study of precisely the same phenomena of nature. . . . Is it not incumbent upon workers in science to keep green the memory of those whose traditions we have inherited?"

GEORGE BROWN GOODE

TO MY MOTHER

PREFACE

THIS work aims to trace bibliographically the rise and progress of natural history in the United States, from the formation of an active American Philosophical Society at Philadelphia in 1769, to the close of the Civil War in 1865. It purposes to show bibliographically the respective rôles played by the various individual institutions in the development and increase of knowledge in American botany, geology, mineralogy, palaeontology, and zoology, during this period, which may appropriately be called the Pioneer Century of American Natural History.

During this century the pioneers, individually and collectively, laid the foundations for the great achievements in American natural history with which we are so familiar to-day. The five chief and most effective agencies instrumental in the promotion and diffusion of this scientific knowledge were: the (1) Scientific Societies; (2) Scientific Journals; (3) State Geological and Natural History Surveys; (4) Natural History Museums and Botanic Gardens; (5) Federal Exploring Expeditions and Surveys.

In the Table of Contents are to be found the names of over two hundred and thirty (230) of these institutions, which have contributed directly and indirectly, in varying degrees, during the Pioneer Century, to the study and dissemination of natural history knowledge.

The Bibliography aims to record the natural history contents of the publications of nearly ninety societies; of twenty-five journals; of thirty-six state geological and natural history surveys; of fifteen natural history museums and botanic gardens, and of over seventy federal exploring expeditions and surveys.

In the publications of these institutions may be found the beginnings of the now numerous and distinct branches of natural history: mineralogy, botany, geology, palaeontology, embryology, comparative anatomy, physiology, microscopy, anthropology and ethnology, and zoology, with its various subordinate branches, conchology, entomology, herpetology, ichthyology, mammalogy, etc.

The work is divided into two principal parts which are designed briefly to give as follows: Part (A), Bibliographical material pertaining to the Pioneer Century and Colonial Times; Part (B), A Bibliographical Portrait of the Pioneer Century. The latter occupies the major portion of the book. Below the plan and content of each of these parts is given in detail.

PART A (VOLUME I)

This part consists of two sections, purely bibliographical, dealing with the historical, biographical and bibliographical aspects of these periods, with subject and geographic indexes to facilitate ready reference.

(1) An ANNOTATED BIBLIOGRAPHY of the Publications relating to the History, Biography and Bibliography of American Natural History and its Institutions, during Colonial Times and the Pioneer Century, which have been published up to 1924.

This contains over 700 titles, arranged alphabetically by author, with extensive subject and geographic indexes (a) and (b), and aims to include everything of importance in the history, collective biography, and bibliography of the branches of natural history enumerated above. Where titles pertain to institutions treated in this book (in (B)), cross-reference is made to same. Such annotations have been made as would indicate the scope, plan, arrangement and content of the work, unless already so indicated in the title itself. Throughout this work references are made to titles as, *e.g.*, see BECKWITH, under ANNOTATED BIBLIOGRAPHY.

(a) The Classified Subject Index to the Annotated Bibliography. This aims to show at a glance the titles pertaining respectively to the Bibliography, Biography, and History of any of the sciences named above, as *e.g.*, BOTANY: Bibliography; Biography; History. Catch titles, and the dates of the publication of the respective titles, are also given. A special section entitled COLONIAL TIMES comprehends the various titles referring to this period.

(b) The Geographic Index to the Annotated Bibliography. This shows what has been done in a particular community, state, city, etc., during this period, in the different sciences. It also contains dates of publication and catch titles.

(2) A SELECTED BIBLIOGRAPHY OF BIOGRAPHIES AND BIBLIOGRAPHIES of the Principal American Naturalists of the Pioneer Century and of Colonial Times.

This list contains nearly fifteen hundred titles relating to over six hundred names of active workers in one branch or other of natural history. For a number of workers it has been exceedingly difficult to find anything except the briefest notes, and for some others biographical matter does not appear to be readily available.

The compilations contained in both (1) and (2) are the result of a personal examination of the entire American scientific literature, and other likely sources of information. This examination of course yielded material for the various sections of Part (B), which have been incorporated in the appropriate places. I am especially indebted for assistance in this connec-

tion to the Card Catalogue of Biographies of Scientists in the Science and Technology Division of the New York Public Library, and to Dr. J. H. Barnhart's Card Catalogue of Biographies of Botanists. Special mention must be made of the printed catalogue cards of the Library of Congress.

PART B (VOLUMES II AND III)

This part, the principal and most extensive in the book, takes up individually the contributions of those institutions which aided in the development of natural history during this period. For the history of natural history in America during Colonial Times, when there existed no definite organizations for the dissemination of natural history knowledge, see Dr. Goode's excellent essay (see under ANNOTATED BIBLIOGRAPHY: GOODE (1)).

The sections comprising this part of the book are as follows:

(1) THE INSTITUTIONS WHICH HAVE CONTRIBUTED TO THE RISE AND PROGRESS OF AMERICAN NATURAL HISTORY, which were founded or organized between 1769 and 1865, arranged chronologically by their respective dates of foundation.

The order in which these institutions are treated, will be found in the Table of Contents with the corresponding dates of foundation or organization. Over 230 of these institutions are dealt with. The material concerning each institution is divided as follows: (a) HISTORY; (b) BIBLIOGRAPHY; (c) REPORTS; (d) PAPERS ON NATURAL HISTORY. All the material of a specific institution from its foundation to 1865 (with such other bibliographical material published since, which may be of importance as covering this period), is thus to be found in one place. By consulting either the TABLE OF CONTENTS or the INDEX OF INSTITUTIONS, the location of the specific institution may be easily found.

Under the HISTORY, it is aimed to give briefly such facts as will give an idea of the organization, personnel, officers, activities, and subsequent history of an institution in its relation especially to natural history. Many of the organizations dealt with in this book were not primarily devoted to natural history, but contributed in an indirect way, either through a medium of publication, or by virtue of their make-up, to the furthering of natural history interests. Wherever and whenever possible, quotations from the publications of the organization concerned are employed in order to give an idea of the aims, spirit and atmosphere of the organization and its workers.

Under the BIBLIOGRAPHY, it is intended to include such titles as will comprehend the history and publications of the Society, which do not appear under the following heads:

The **REPORTS** are applicable mainly to the Exploring Expeditions, the State Geological Surveys, and in some cases to the Societies. It is aimed, under this section, to give the contents of the Reports of these institutions, with references to other editions, whenever possible, and with especial reference to the natural history matter contained therein.

Under **PAPERS ON NATURAL HISTORY**, will be found a chronological catalogue of the papers on natural history pertaining to that institution or to be found on its publications. Under the Scientific Societies, the papers are arranged chronologically under the date of reading, or when that is not possible, by the date of publication. The list is prefaced by an enumeration of the dates of the various parts of the organ or organs of publication of the institution in question. Where papers have been read before more than one society, cross references have been given.

In the cases of Scientific Journals, it is intended to show the natural history contents of each number, so that at a glance it is possible to determine whether any particular number contains any articles on natural history.

In the case of State Surveys and Exploring Expeditions, the Papers on Natural History include those titles which describe either the collections or the examinations made, but which have been published in places other than their own Reports. In the case of several important exploring expeditions, this list contains the only accessible scientific records, as Reports of an official character were never published. Notable instances of this are the Rodgers & Ringgold North Pacific Exploring Expedition (1853), and the Northwest Boundary Survey (1857). Reviews of important Papers, Reports, etc., are noted.

The method of cross-referencing between institutions is illustrated in the following examples. After a given entry, a reference such as this appears: "See also **LONG EXPEDITION TO THE ROCKIES** (1819);" or, "Rd (read) before Bost. Soc. Nat. Hist. (1830), Dec. 12, 1856. In its Proc. v. 6, p. 84-9." The date in parentheses indicates the date of foundation of the institution referred to, as, 1819, in which year the Long Expedition to the Rockies was sent out by the government; or, 1830, the year of the foundation of the Boston Society of Natural History. By consulting the Table of Contents under the respective dates, the location of more information concerning these institutions is to be found quite readily.

The outstanding institutions during the Pioneer Century, those which played the most prominent and successful parts in advancing and promoting the cause of natural history, were, with their corresponding dates of formation, the **AMERICAN PHILOSOPHICAL SOCIETY**, at Philadelphia (1769); the **ACADEMY OF NATURAL SCIENCES OF PHILADELPHIA** (1812); the **AMERICAN**

JOURNAL OF SCIENCE (1818); the LYCEUM OF NATURAL HISTORY OF NEW YORK (1817); the BOSTON SOCIETY OF NATURAL HISTORY (1830); MASSACHUSETTS GEOLOGICAL SURVEY (1830); NATURAL HISTORY SURVEY OF NEW YORK (1836); PENNSYLVANIA GEOLOGICAL SURVEY (1836); SMITHSONIAN INSTITUTION (1846); AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE (1848); WILKES'S U. S. EXPLORING EXPEDITION (1838); PACIFIC RAILROAD SURVEYS (1853); RODGERS & RINGGOLD NORTH PACIFIC EXPLORING EXPEDITION (1853); AMERICAN ACADEMY OF ARTS & SCIENCES, BOSTON (1780); ESSEX INSTITUTE (1848).

The titles of several thousand papers on American natural history, contained in the publications of these and the other institutions, are to be found in this volume, in their proper places.

(2) A BIBLIOGRAPHY OF BOOKS, ARTICLES AND MISCELLANEOUS PUBLICATIONS RELATING TO AMERICAN NATURAL HISTORY. This section contains titles not published in the Proceedings and Transactions of the scientific societies, the Reports of Exploring expeditions and geologic surveys, or in the scientific journals, enumerated under (1). It consists mainly of a catalogue of isolated books published by the authors themselves, without any institutional supervision or connection, and such articles or papers as appeared in obscure or not easily accessible medical, agricultural and in some instances foreign journals and newspapers.

It is divided into two parts, the first containing a list of books and papers published prior to 1769, and regarded as the publications of Colonial Times; the second, containing titles between 1769 and 1865, and representing the literature of the Pioneer Century.

In the first part have been recorded especially the papers published in the Philosophical Transactions of the Royal Society of London, one of the very few agencies for scientific publication available to the colonists in America.

Important reviews of books and pamphlets appearing in both lists have been noted, chiefly those appearing in the North American Review and the American Journal of Science.

The part dealing with colonial times contains about one hundred titles; while the part comprehending the Pioneer Century contains over one thousand titles.

(3) CHRONOLOGICAL TABLES OF PUBLICATIONS, which exhibit the contemporaneity of the publications of the various institutions considered in the book, arranged by decades. A special table of abbreviations employed in these tables is given on the page preceding TABLE 1—1769-1779.

(4) AN INDEX OF AUTHORS AND NATURALISTS, arranged alphabetically, aims to show with what institutions an individual was connected. Consid-

erably over 2,500 names are contained in this list, a large number of whom were, strictly speaking, not active naturalists.

(5) AN INDEX OF INSTITUTIONS, arranged alphabetically, to facilitate determination of the date of formation of a specific institution.

All material supplied by the author has been bracketed. The bibliographical data contained in this book have been given with few exceptions from the original sources, after personal examinations. All volumes are octavo in size unless otherwise indicated. A set of Tables of the principal abbreviations used in this work may be found on the pages succeeding the Table of Contents.

An asterisk before the name of an author in the body of the work (*i.e.*, Part B), denotes that he was not, strictly speaking, an American. In some cases where men have spent many years in scientific work in the United States, they have been regarded as Americans, but the line of demarcation is difficult to draw.

Many of the articles printed in American publications were often reprinted in foreign scientific journals. No attempt to check them has been made, as they are easily available through the use of the Royal Society Catalogue of Scientific Literature for 1800-1874 (see under ANNOTATED BIBLIOGRAPHY: ROYAL SOCIETY OF LONDON. Catalogue of Scientific Papers).

For facility in reference to those who have the serial set of U. S. Documents at hand, the serial numbers accompanying the various volumes of Documents have been cited, applicable especially to the Reports of Federal Exploring Expeditions and Surveys.

Constant reference has been made throughout this work to that great repository of scientific knowledge, especially valuable in connection with the early part of the nineteenth century, the AMERICAN JOURNAL OF SCIENCE (1818), *q.v.*, which recently celebrated its centennial with the issue of a splendid volume reviewing in detail the achievements of American science in its various aspects, as comprehended within the pages of that Journal (see ANNOTATED BIBLIOGRAPHY: CENTURY OF SCIENCE IN AMERICA). I have examined the Journal page by page (on two different occasions) from its inception in 1818 to 1867, and in this way have gathered the information relating to the history, bibliography, etc., of the less well-known institutions met with in this work. By referring to this Journal (*q.v.*, under 1818), there will be found the natural history contents of the first ninety volumes, showing what may be found in each number of the Journal issued, with the necessary bibliographical data.

Frequent reference has also been made to Dr. George P. Merrill's very admirable, and now classic "Contributions to a History of American Geology" (see ANNOTATED BIBLIOGRAPHY: MERRILL, G. P. (1)), for criticisms

of geological surveys, the work of geologists, expeditions, etc.; in short, anything connected with the work of geologists, palaeontologists, and mineralogists in the United States.

My indebtedness is also very great to the extensive and invaluable researches of the late Dr. George Brown Goode, Assistant Secretary of the Smithsonian Institution, into the early history of American natural history, and American science and its institutions generally (see *ANNOTATED BIBLIOGRAPHY*: GOODE (1) to (7)).

Special mention should also be made of Darton's very useful "Bibliography of American Geology: 1732-1891 (see *ANNOTATED BIBLIOGRAPHY*: DARTON).

For brief accounts of the routes followed by the various exploring expeditions, reference has been made to Lt. G. K. Warren's excellent "Memoir . . .," which constitutes v. 11 of the well-known Pacific Railroad Surveys (see WARREN, G. K., under the *ANNOTATED BIBLIOGRAPHY*). Miss A. R. Hasse's great series of "Indexes to the economic material of state documents" has been especially useful for its lists of state documents relating to the geological surveys of thirteen states (see *ANNOTATED BIBLIOGRAPHY*: HASSE (2)).

Particular attention should also be called to Dr. G. P. Merrill's "Contributions to a history of the state geological and natural history surveys," published in 1920. References have been made in the appropriate places to the comprehensive individual state histories contained therein (see *ANNOTATED BIBLIOGRAPHY*: MERRILL, G. P. (2)).

In fact, all the works constituting the *ANNOTATED BIBLIOGRAPHY* have been of use in the course of this work. In a certain sense, therefore, the purpose of this book has been to both complement and supplement such researches as those of Messrs. Goode, Merrill, Warren, Darton, etc.

This Bibliography had its origin in December, 1914, in suggestions made by my friend and former teacher, Prof. A. C. Goldfarb of the Biology Department of the College of the City of New York, and to those made by Dr. L. Hussakof, formerly curator of Ichthyology, the American Museum of Natural History. I take this opportunity of expressing my appreciation of their interest and assistance at various stages of the work.

In a partially completed form, it was submitted as a graduation requirement in June, 1916, to the New York State Library School, Albany, N. Y. To Mr. Walter Stanley Biscoe, senior librarian and bibliographer of the New York State Library, my debt is very great, for his generous assistance in outlining the work in its early days, and for the privilege of calling freely on his unrivalled store of bibliographical knowledge, and bibliographical methods.

Work on the Bibliography was continued while serving as a member of the Science Division of the New York Public Library, during 1916 and 1917. Owing to service with the U. S. Army and the American Library Association, further activity was suspended during 1918 and 1919.

Since February, 1920, the entire MSS. has been revised, all the titles verified, and numerous and extensive additions made. This re-examination, it is hoped, has reduced the errors to a minimum.

Research has been carried on mainly in the following libraries: the New York State Library, Albany, N. Y.; the New York Public Library; the Library of Congress (including the Smithsonian Deposit); the New York Botanical Garden Library; the American Museum of Natural History Library; the New York Academy of Medicine Library; the Library of the Museum of the Brooklyn Institute of Arts & Sciences; the Brooklyn Botanic Garden Library; the Boston Society of Natural History Library; the Yale and Harvard University Libraries; the Albany Art and Historical Society Library; and the Library of the Academy of Natural Sciences of Philadelphia. I take this occasion of thanking the directors and their associates of the institutions enumerated for the many courtesies extended.

To Dr. John Hendley Barnhart, the bibliographer, and former librarian of the New York Botanical Garden, I am profoundly grateful for the many kindnesses he has shown, for the very helpful advice in the preparation of parts of the MSS., and for placing at my beck and call his extraordinary bibliographical knowledge of botany and natural history generally. If botany is unusually well represented in this work, it is due to Dr. Barnhart's efforts to remind me of everything coming within the scope of the work.

During the course of nine years many have rendered assistance of one sort or another, and I wish to place on record my appreciation of these efforts. I have been favored with courtesies and information by the following: the Misses Dorothy and Frances Kellert; Miss Anne Axelroad; Mr. James I. Wyer, Jr., and Mr. Frank K. Walter, respectively, director and vice-director of the New York State Library School at Albany; Mr. Sidney and Miss Sadye C. Meisel (for the drudgery of proof-reading); Miss Mary Ellis; Mr. F. L. D. Goodrich; Miss Susan Hutchinson and Miss Ladd of the Brooklyn Museum; Miss Sarah H. Harlow, the librarian of the N. Y. Botanical Garden; Mrs. C. F. Norton of the Transylvania University Library, Lexington, Ky.; Mr. R. S. Fletcher, librarian at Amherst College; Mr. H. H. Ballard of the Pittsfield Athaenaeum; Mr. Andrew Keogh, librarian of Yale University; Dr. Paul M. Rea, lately director of the Charleston (S. C.) Museum; Mr. Bates, of the Connecticut Historical Society Library at Hartford; Miss Minnie Singer; Mr. William Beer; Mr. J. P.

Fowler; and the librarians of the following institutions: the Library of the Surgeon-General's Office; American Philosophical Society; the Worcester Lyceum of Natural History; Rhode Island Historical Society; Brown University; Utica Public Library; Hudson (N. Y.) and Newburgh (N. Y.) Public Libraries; Williams College Library; United Engineering Societies Library; Library of Columbia University; the Smithsonian Institution; the Wilmington Institute, Wilmington, Delaware; Little Rock Public Library; Arkansas State History Commission (Mr. Dallas Herndon); Pennsylvania College, Gettysburg, Pa. (Mr. Karl J. Grimm); Long Island Historical Society, Brooklyn, N. Y.; Kings County Medical Society, Brooklyn, N. Y.; Dr. Ralph W. Tower, librarian of the American Museum of Natural History; Dr. John M. Clarke, director of the N. Y. State Museum.

I am very grateful to the following for criticisms of various parts of the manuscript: Mr. H. M. Lydenberg, reference librarian, N. Y. Public Library; Mr. Charles Wenholt, of Brooklyn, N. Y.; Dr. Paul M. Rea, lately director of the Charleston Museum, now of the Cleveland Museum of Natural History; Miss Ray Simpson, librarian of the Brooklyn Botanic Garden.

This work of reference has been planned and produced with the varied and distinctive needs of the scientist, the librarian, the bibliographer, and the student, in mind. The work has been subjected to several revisions and the most painstaking care taken to reduce the errors and the omissions to a minimum.

In conclusion, if this bibliographical portrait or picture of the achievements of the pioneer institutions and the pioneer workers aids in disseminating a further knowledge of what has been accomplished during, and of what has been written about the Pioneer Century of Natural History in the United States, the object of the work will have been attained.

1593 PRESIDENT STREET,
BROOKLYN, NEW YORK

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PART A

(In Volume I)

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PART B

(In Volumes II and III)

THE INSTITUTIONS WHICH HAVE CONTRIBUTED TO THE RISE AND PROGRESS OF AMERICAN NATURAL HISTORY WHICH WERE FOUNDED OR ORGANIZED BETWEEN 1769 AND 1865, ARRANGED CHRONOLOGICALLY BY THEIR RESPECTIVE DATES OF FOUNDATION (as follows):

- 1769 American Philosophical Society, Philadelphia.
- 1773 Charleston (S. C.) Museum.
- 1780 American Academy of Arts & Sciences, Boston.
- 1784 Peale's Philadelphia Museum.
- 1787 University of the State of New York, Annual Reports of the Board of Regents.
- 1791 Society for the Promotion of Agriculture, Arts & Manufactures, New York City.
- 1793 Harvard College Mineralogical Cabinet, Cambridge.
- 1797 Medical Repository.
- 1798 American Mineralogical Society, New York City.
- 1799 Connecticut Academy of Arts & Sciences, New Haven.
East India Marine Society, Salem, Mass.
- 1801 Elgin Botanic Garden, New York City.
- 1802 Yale College Mineralogical Cabinet, New Haven.
- 1803 Sibley's Exploration of the Red River.
- 1804 Dunbar's Expedition to Louisiana.
Lewis and Clark Expedition.
New York Historical Society.
Philadelphia Medical & Physical Journal.
Society for the Promotion of Useful Arts, Albany.
- 1805 Cambridge (Mass.) Botanic Garden.
Charleston (S. C.) Botanic Garden & Society.
College of New Jersey (Princeton) Cabinet of Natural History.
Pike's Expeditions.

- 1806 Linnaean Society of Philadelphia.
- 1810 American Mineralogical Journal.
American Medical & Philosophical Register.
- 1812 Academy of Natural Sciences of Philadelphia.
- 1813 Literary & Philosophical Society of South Carolina, Charleston.
Pittsburg Chemical & Physiological Society.
- 1814 Linnaean Society of New England, Boston.
Literary & Philosophical Society of New York.
- 1816 Columbian Institute for the Promotion of Arts & Sciences, Wash-
ington, D. C.
- 1817 American Monthly Magazine & Critical Review.
Lyceum of Natural History of New York.
Washington Botanical Society.
- 1818 American Journal of Science.
Troy Lyceum of Natural History.
Western Museum Society, Cincinnati.
- 1819 American Geological Society, New Haven.
Hudson Association for Improvement in Science.
Long Expedition to the Rockies.
- 1820 Cass Expedition to the Great Lakes.
Catskill (N. Y.) Lyceum of Natural History.
- 1821 Delaware County Chemical & Geological Society, Delhi, N. Y.
Franklin Society of Providence.
- 1822 Amherst College Natural History Society and Cabinets, Amherst, Mass.
Maryland Academy of Science & Literature, Baltimore.
New York Medical & Physical Journal.
Western Quarterly Reporter of the Medical, Surgical & Natural Sciences.
- 1823 Albany Lyceum of Natural History.
Boston Journal of Philosophy & the Arts.
Long Expedition to the Sources of the St. Peter's.
Lyceum of Natural History, Berkshire Medical Institution, Pittsfield,
Mass.
North Carolina Geological Surveys.
Newburgh Lyceum of Natural Sciences.
Utica Lyceum of Natural History.

- 1824 Albany Institute.
South Carolina Geological Surveys.
Transylvania University Botanical Garden, Lexington, Ky.
- 1825 Botanic Club of Washington, D. C.
Worcester Lyceum of Natural History.
- 1826 Chester County Cabinet of Natural Science, West Chester, Pa.
Maclurian Lyceum of Philadelphia.
- 1827 Delaware Academy of Natural Sciences, Wilmington, Delaware.
Western Journal of Medical & Physical Sciences.
- 1828 Transylvania Journal of Medicine & the Associate Sciences.
- 1830 Boston Society of Natural History.
Massachusetts Geological Surveys.
- 1831 American Botanical Register.
Monthly American Journal of Geology & Natural Science.
Schoolcraft's Expedition to the Indian Country.
Tennessee Geological Surveys.
Virginia Historical & Philosophical Society, Richmond.
- 1832 Antiquarian & Natural History Society of Arkansas, Little Rock.
Geological Society of Pennsylvania.
New York State Agricultural Society, Albany.
Schoolcraft & Allen's Expedition to the Source of the Mississippi.
- 1833 Delaware County Institute of Science, Media, Pa.
Essex County Natural History Society, Salem, Mass.
Maryland Geological Survey.
United States Naval Lyceum, Brooklyn, N. Y.
- 1834 Advocate of Science & Annals of Natural History.
Featherstonhaugh Survey of the Missouri & Red Rivers.
Yale Natural History Society.
- 1835 Connecticut Geological Survey.
Dodge Expedition to the Rockies.
Featherstonhaugh Survey of the Coteau de Prairie.
Magazine of Horticulture & Botany.
Natural History Society of Hartford, Conn.
New Jersey Geological Surveys.
Virginia Geological Surveys.
Western Academy of Natural Sciences, Cincinnati.
Williams College Lyceum of Natural History.

- 1836 Cuvierian or Natural History Society of Wesleyan University, Middletown, Conn.
Georgia Geological Survey.
Maine Geological Surveys.
Natural History Survey of New York.
Nicollet's Explorations of the Upper Mississippi.
Pennsylvania Geological Survey.
U. S. Commissioner of Patents. Agricultural Reports.
Western Academy of Natural Sciences, St. Louis.
- 1837 Delaware Geological Survey.
Harvard Natural History Society, Cambridge.
Indiana Geological Surveys.
Michigan Geological Surveys.
Ohio Geological Survey.
University of Michigan Natural History Museum, Ann Arbor.
Zoological & Botanical Survey of Massachusetts.
- 1838 Brooklyn, N. Y., Lyceum of Natural History.
Wilkes's U. S. Exploring Expedition.
- 1839 Agricultural, Horticultural & Botanical Society, Jefferson College, Mississippi.
New Hampshire Geological Surveys.
Owen's Survey of Iowa, Illinois & Wisconsin.
Rhode Island Geological Survey.
- 1840 Association of American Geologists & Naturalists.
National Institution for the Promotion of Science, Washington, D. C.
Natural History Society of Geneva, N. Y.
- 1841 Northern Academy of Arts & Sciences, Hanover, N. H.
- 1842 American Ethnological Society, New York City.
Botanical Society of Wilmington, Delaware.
Entomological Society of Pennsylvania, York, Pa.
Fremont's Expedition to the Missouri River & the Rocky Mountains.
Lynn Natural History Society, Lynn, Mass.
- 1843 Fremont's Expedition to Oregon & California.
Iowa Historical & Geological Institute, Burlington.
New York State Cabinet of Natural History, Albany, N. Y.
Portland (Maine) Society of Natural History.
- 1844 Allen's Expedition to the Des Moines & Blue Earth Rivers.
Linnaean Association of Pennsylvania College, Gettysburg, Pa.
Missouri Historical & Philosophical Society, Jefferson City, Mo.
Vermont Geological Surveys.

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- 1845 Abert's Explorations of the Upper Arkansas.
American Journal of Agriculture & Science.
Cleveland Academy of Natural Sciences.
Fremont's Explorations in Upper California.
- 1846 Abert's Examinations of New Mexico.
Charleston Medical Journal and Review.
Concord (N. H.) Natural History Society.
Emory's Reconnaissance from Fort Leavenworth to San Diego.
Ohio Agricultural Reports.
Smithsonian Institution.
Wislizenus's Tour to Northern Mexico.
- 1847 Lynch's Dead Sea Expedition.
Owen's Chippewa Land District Survey of Wisconsin.
U. S. Survey of the Mineral Lands of Michigan, by Jackson.
- 1848 Alabama Geological Survey.
American Association for the Advancement of Science.
Essex Institute, Salem, Mass.
Owen's Survey of Wisconsin, Iowa & Minnesota.
United States & Mexican Boundary Survey.
- 1849 Foster & Whitney's Survey of the Lake Superior Land District.
Gilliss's U. S. Naval Astronomical Expedition to the Southern Hemisphere.
Marcy's Expedition from Fort Smith to Santa Fe.
Pope's Exploration of Minnesota.
Reconnaissances of Routes from San Antonio to El Paso.
Simpson's Survey of a Route between Fort Smith & Santa Fe & An Expedition to the Navajo Country.
Stansbury's Explorations of the Salt Lake Valley.
U. S. Surveys of California and Oregon.
U. S. Survey of the Creek Indian Boundary Line by Sitgreaves & Woodruff.
- 1850 Annual of Scientific Discovery.
Derby's Reconnaissances in California.
Mississippi State Geological Society.
Mississippi Geological Surveys.
- 1851 Herndon & Gibbon's Explorations of the Valley of the Amazon.
Illinois Geological Survey.
Lee's Dolphin Expedition.
Sitgreaves's Expedition down the Zuni & Colorado Rivers.
Society for the Advancement of Natural Sciences, Louisville, Ky.
Wisconsin State Agricultural Society.

- 1852 *Annals of Science.*
Kane's Expedition to the Arctic Regions.
Marey's Exploration of the Red River.
National Botanic Garden, Washington, D. C.
Perry's U. S. Japan Expedition.
- 1853 *California Academy of Natural Sciences, San Francisco.*
California Geological Survey.
Elliott Society of Natural History, Charleston, S. C.
Florida Geological Survey.
Mining Magazine.
Missouri Geological Survey.
New Orleans Academy of Sciences.
Pacific Railroad Surveys.
Abbot's Explorations v. 6.
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Wisconsin Geological Survey.
- 1854 *Kentucky Geological Survey.*
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- 1855 *Iowa Geological Survey.*
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Warren's Sioux Expedition.
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Bryan's Expedition from Fort Riley to Bridger's Pass.
Chicago Academy of Sciences.
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Warren's Explorations in Nebraska & Dakota.
- 1857 *Arkansas Geological Survey.*
Ives Expedition up the Colorado.
Michler's Expedition to the Isthmus of Darien.
Northwest Boundary Survey.
- 1858 *Illinois Natural History Society, Bloomington.*
Mullan's Expedition from Fort Walla-Walla to Fort Benton on the Missouri River.

Potomac—Side Naturalists' Club, Washington, D. C.
 Simpson's Utah Expedition.
 Texas Geological Surveys.
 Wyoming Historical & Geological Society, Wilkes-Barre, Pa.

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 Macomb Expedition to New Mexico, Utah & Colorado.
 Minnesota Geological Surveys.
 Museum of Comparative Zoology, Cambridge, Mass.
 Reynolds's Exploration of the Yellowstone.
 Springfield (Mass.) Museum of Natural History.
 Wilmington Institute, Wilmington, Delaware.
 Zoological Society of Philadelphia.

1860 Hall's Arctic Expeditions.
 Hayes's Arctic Expeditions.
 Isthmus of Chiriqui Expedition.

1861 Buffalo Society of Natural Sciences.

1862 Linnaean Society of Lancaster, Pa.
 Ward Museum of Natural History, Rochester, N. Y.

1863 National Academy of Sciences.

1864 Harvard University Herbarium (Gray Herbarium).
 Kansas Geological Survey.
 Louisiana Geological Survey.

1865 American Journal of Conchology.
 Nevada Geological Survey.

A BIBLIOGRAPHY OF THE BOOKS, ARTICLES AND MISCELLANEOUS PUBLICATIONS, RELATING TO AMERICAN NATURAL HISTORY, NOT PUBLISHED IN THE PROCEEDINGS AND TRANSACTIONS OF THE SCIENTIFIC SOCIETIES, REPORTS OF U. S. EXPLORING EXPEDITIONS AND THE STATE GEOLOGICAL SURVEYS, AND THE SCIENTIFIC JOURNALS CONTAINED IN THE BODY OF THIS WORK: IN TWO PARTS:

Pt. I. 1590-1768.

Colonial Period (From the earliest days to the formation of an active American Philosophical Society at Philadelphia, in 1769).

Pt. II. 1769-1865.

Pioneer Century of American natural history.

CHRONOLOGICAL TABLES OF THE PUBLICATIONS OF THE DIFFERENT INSTITUTIONS CONTAINED IN THIS WORK.

Tables by Decades.

I-X.

INDEX OF AUTHORS AND NATURALISTS.

INDEX OF INSTITUTIONS.

LISTS OF ABBREVIATIONS

1. GENERAL

A.	Annals	Linn.	Linnaean
abstr.	abstract (s)	Lit.	Literary,
Acad.	Academy		Literature
acc.	accepted	Lond.	London
Adv.	Advancement	Lyc.	Lyceum
Agric.	Agriculture	M.	Memoirs
Amer.	American	M. C.	Miscellaneous
Ann.	Annual		Collections
Annot.	Annotated	Mag.	Magazine
Anon.	Anonymous	Manuf.	Manufactures
appx.	appendix	Med.	Medicine,
art.	article (s)		Medical
Ass.	Assembly	Mem.	Memoirs
Assoc.	Association	Min.	Mineralogy,
Astron.	Astronomical		Mineralogical
Balt.	Baltimore	Misc. Coll.	Miscellaneous
Bdry.	Boundary		Collections
Bib[liog].	Bibliography	Mthly.	Monthly
Biog[r].	Biographical	Mus.	Museum
Bost.	Boston	n. s.	new series
Bot.	Botany, Botanic	Nat.	Natural,
Bull.	Bulletin		National
Bur.	Bureau	no.	number (s)
C.	Contributions	Occas.	Occasional
Cab.	Cabinet	Ornith.	Ornithology
Cal.	California	p.	page (s)
Cat.	Catalogue	P.	Proceedings
co.	company	Pal.	Palaeontology
Co.	County	Pharm.	Pharmacy
col.	colored	Phil.	Philosophical
Coll.	Collections	Phila.	Philadelphia
com.	communicated	Phys.	Physical
Com.	Communications	pl.	plate (s)
Commiss.	Commissioner	port.	portrait (s)
Comp.	Comparative	pref.	preface
Conch.	Conchology	pres.	presented
Cong.	Congress	print.	printing
cont.	continued	Proc.	Proceedings
Contr.	Contributions	Prof.	Professional
corr.	corrected	Prom.	Promotion
Crit.	Critical	pt.	part (s)
Dept.	Department	pub.	published
diagr.	diagrams	Pub.	Publication (s)
Dis.	Discourse	Quart.	Quarterly

Div.	Division	R.	Report (s)
Doc. (s)	Document (s)	rd.	read
Econ.	Economic	Reconn.	Reconnaissance (s)
ed.	edition (s), edited, editor	Reg.	Register
		Repos.	Repository
		repr.	reprinted, Reprint
Educ.	Educational	rev.	review
Eng.	Engineers	Rev.	Review
Ent.	Entomology	R.R.	Railroad
enl.	enlarged	S. C.	Smithsonian Contributions to Knowledge
Ethnol.	Ethnology	Sc.	Science
Ex.	Executive	sect.	section (s)
Exped.	Expedition	Sen.	Senate
Exper.	Experiment	ser.	series
Explor.	Exploration (s)	sess.	session
Extr.	Extract (s)	Soc.	Society
fig.	figure (s)	St.	State
fold.	folded	Stud.	Studies
Gard.	Garden	supp.	supplement
Gaz.	Gazette	Surg.	Surgery, Surgical
Geol.	Geology, Geological	Surv.	Survey (s)
Govt.	Government	T.	Transactions
H.	House	tab.	table (s)
Hist.	History, Historical	Tech.	Technical
Hort.	Horticulture, Horticultural	Topogr.	Topographical
illus.	illustration (s)	Trans.	Transactions
Inst.	Institute, Institution	Univ.	University
J.	Journal	v.	volume (s)
Jour.	Journal	Wash.	Washington
K.	Knowledge	Zool.	Zoology, Zoological

2. OF INSTITUTIONS, SERIALS, ETC.

Acad. Nat. Sc. Phila.	Academy of Natural Sciences of Philadelphia
Acad. Sc. St. Louis	Academy of Science of St. Louis
Advocate Sc. & Annals Nat. Hist.	Advocate of Science & Annals of Natural History
Albany Inst.	Albany Institute
Albany Lyc. Nat. Hist.	Albany Lyceum of Natural History
Amer. Acad. A. & Sc.	American Academy of Arts & Sciences
Amer. Antiq. Soc.	American Antiquarian Society
Amer. Assoc. Adv. Sc.	American Association for the Advancement of Science
Amer. Assoc. Geol. & Nat.	American Association of Geologists & Naturalists

Amer. Assoc. Mus.	American Association of Museums
Amer. Bot. Reg.	American Botanical Register
Amer. Ethnol. Soc.	American Ethnological Society
Amer. Geol.	American Geologist
Amer. Geol. Soc.	American Geological Society
Amer. Inst. Mining Eng.	American Institute of Mining Engineers
Amer. J. Conch.	American Journal of Conchology
Amer. J. Sc.	American Journal of Science
Amer. Med. & Phil. Reg.	American Medical & Philosophical Register
Amer. Miner. J.	American Mineralogical Journal
Amer. Mthly. Mag. & Crit. Rev.	American Monthly Magazine & Critical Review
Amer. Phil. Soc.	American Philosophical Society
Amer. Quart. J. Agric. & Sc.	American Quarterly Journal of Agriculture & Science
Annals Sc.	Annals of Science
Assoc. Amer. Geol. & Nat.	Association of American Geologists & Natural- ists
Biol. Soc. Wash.	Biological Society of Washington
Bost. J. Phil. & Arts.	Boston Journal of Philosophy & the Arts
Bost. Soc. Nat. Hist.	Boston Society of Natural History
Bot. Gaz.	Botanical Gazette
Buffalo Soc. Nat. Sc.	Buffalo Society of Natural Sciences
Cal. Acad. Nat. Sc.	California Academy of Natural Sciences
Cal. Geol. Surv.	California Geological Survey
Charleston Med. J.	Charleston (S. C.) Medical Journal
Chester Co. Cab. Nat. Sc.	Chester County Cabinet of Natural Sciences
Chicago Acad. Sc.	Chicago Academy of Sciences
Cleve. Acad. Nat. Sc.	Cleveland Academy of Natural Science
Columbian Inst. Prom. A. & Sc.	Columbian Institute for the Promotion of Arts & Sciences
Conn. Acad. A. & Sc.	Connecticut Academy of Arts & Sciences
Delaware Co. Inst. Sc.	Delaware Institute of Science
Elgin Bot. Gard.	Elgin Botanical Garden
Elliott Soc. Nat. Hist.	Elliott Society of Natural History
Ent. Soc. Phila.	Entomological Society of Philadelphia
Essex Co. Nat. Hist. Soc.	Essex County Natural History Society
Essex Inst.	Essex Institute
Geol. Soc. Amer.	Geological Society of America
Geol. Soc. Pa.	Geological Society of Pennsylvania
Harvard Nat. Hist. Soc.	Harvard Natural History Society
Illinois Nat. Hist. Soc.	Illinois Natural History Society
Jour. Geol.	Journal of Geology
Linn. Assoc. Pa. Coll.	Linnaean Association of Pennsylvania College
Linn. Soc. New England	Linnaean Society of New England
Linn. Soc. Phila.	Linnaean Society of Philadelphia
Lit. & Phil. Soc. N. Y.	Literary & Philosophical Society of New York
Lit. & Phil. Soc. S. C.	Literary & Philosophical Society of South Carolina
Maclurian Lye. Phila.	Maclurian Lyceum of Philadelphia

Mag. Hort. & Bot.	Magazine of Horticulture & Botany
Maryland Acad. Sc. & Lit.	Maryland Academy of Science & Literature
Mass. Geol. Surv.	Massachusetts Geological Survey
Mass. Hort. Soc.	Massachusetts Horticultural Society
Med. Repos.	Medical Repository
Mining Mag.	Mining Magazine
Minn. Acad. Nat. Sc.	Minnesota Academy of Natural Sciences
Minn. Geol. & Nat. Hist. Surv.	Minnesota Geological & Natural History Survey
Mus. Comp. Zool.	Museum of Comparative Zoology
N. Y. Acad. Sc.	New York Academy of Sciences
N. Y. Bot. Gard.	New York Botanical Garden
N. Y. Hist. Soc.	New York Historical Society
N. Y. Lyc. Nat. Hist.	New York Lyceum of Natural History
N. Y. Med. & Phys. J.	New York Medical & Physical Journal
N. Y. St. Agric. Soc.	New York State Agricultural Society
N. Y. St. Cab. Nat. Hist.	New York State Cabinet of Natural History
Nat. Acad. Sc.	National Academy of Sciences
Nat. Cycl. Amer. Biog.	National Cyclopaedia of American Biography
Nat. Hist. Soc. Hartford	Natural History Society of Hartford
Nat. Hist. Surv. N. Y.	Natural History Survey of New York
Nat. Inst. Prom. Sc.	National Institution for the Promotion of Science
Pacific RR. Surv.	Pacific Railroad Surveys
Phil. Soc. Wash.	Philosophical Society of Washington
Phila. Acad. Nat. Sc.	Philadelphia Academy of Natural Sciences
Phila. Med. & Phys. J.	Philadelphia Medical & Physical Journal
Pittsfield Lyc. Nat. Hist.	Pittsfield Lyceum of Natural History (Berk- shire Medical Institution)
Pop. Sc. Mthly.	Popular Science Monthly
Portland Soc. Nat. Hist.	Portland (Me.) Society of Natural History
Smith. Inst.	Smithsonian Institution
Soc. Prom. Agric. Arts & Manuf.	Society for the Promotion of Agriculture, Arts & Manufactures
Soc. Prom. Useful Arts	Society for the Promotion of Useful Arts
Transylvania J. Med. & Assoc. Sc.	Transylvania Journal of Medicine and the Associated Sciences ,
Troy Lyc. Nat. Hist.	Troy Lyceum of Natural History
U. S. & Mexican Bdry. Surv.	United States & Mexican Boundary Survey
U. S. Geol. Surv.	United States Geological Survey
Univ. Colo.	University of Colorado
Univ. St. N. Y.	University of the State of New York
Western J. Med. & Phys. Sc.	Western Journal of the Medical & Physical Sciences
Western Mus. Soc.	Western Museum Society
Yale Nat. Hist. Soc.	Yale Natural History Society
Zool. & Bot. Surv. Mass.	Zoological & Botanical Survey of Massachusetts
Zool. Soc. Phila.	Zoological Society of Philadelphia

AN ANNOTATED BIBLIOGRAPHY OF THE PUBLICATIONS
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- (a) Alphabetical catalogue of authors whose works are referred to; p. 9-18.
- (b) Of the rise of scientific zoology in the United States, with notices of naturalists, particularly connected with the subject of this work. p. 31-55.
- (c) Of the ignorance and neglect of American labors in zoology exhibited by European naturalists. p. 56-62.

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(2) General bibliographies which include references to fishes, p. 339-42.

(3) Voyages and expeditions which relate to fishes, p. 343-47.

(4) List of periodicals relating to fish & fish culture with the abbreviations herein used, p. 348-53.

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- (2) ———, ed. & comp. . . . Contributions to a history of American state geological and natural history surveys; edited and compiled by George P. Merrill. Washington, Gov't print. office, 1920. 18 + 549 p. 37 pl. (78 port.) (In U. S. Nat. Mus. Bull. no. 109)

Historical accounts, varying in length, of the 36 states which have had state geological surveys prior to 1885. The accounts were in a number of cases written by the state geologists of that date, and were ed. by Merrill for this work.

Contains reprints of the original acts authorizing the various surveys, discussion of the expenses, personnel, publications and their contents, etc.

Appx. 1, p. 537-38, Summary of principal items relating to state surveys, including tabular statement giving dates, names of geologists, and expenses of all state surveys existing prior to 1900.

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MICHIGAN GEOLOGICAL AND BIOLOGICAL SURVEY. Reports: 1838-1912. Lansing, [1912.] 13 p.

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- (1) MILLER, S[amuel] A[lmond]. Brief mention of some of the men who aided in developing the science of geology in America, but who are known no longer except by their works. (In Cincinnati Soc. Nat. Hist. Jour. v. 5, p. 101-15. 1882)
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 Review of the literature up to 1881.
- MILLSPAUGH, C[hables] F[rederick]. Botanical field work in the state of West Virginia. Wheeling, W. Va., 1913. (In West Virginia Geol. Surv. v. 5 (A). pt. 1, p. 2-13)
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- MINOT, Charles Sedgwick. A bibliography of vertebrate embryology. Boston, 1893. (In Bost. Soc. Nat. Hist. Mem. v. 4, p. 487-614)
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- MITCHILL, Samuel Latham. A discourse delivered before the New York Historical Society, at their anniversary meeting December 6, 1813, embracing a concise and comprehensive account of the writings which illustrate the botanical history of North and South America. (In N. Y. Hist. Soc. Coll. v. 2, p. 149-215. 1814)
 p. 161- 65 16th century
 p. 165- 74, 17th century
 p. 174-209, 18th century
 p. 209- 15, 19th century
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- MORRIS, J[ohn] G[ottlieb]. Contributions towards a history of entomology in the United States. (In Amer. J. Sc. ser. 2, v. 1, p. 17-27. Jan. 1846)
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 History of N. E. Orthopterology, p. 208-11; Collections, p. 211-12.
- (1) MORSE, E[dward] S[yvester]. Notes on the condition of zoology, fifty years ago and of today; in connection with the growth of the Essex Institute. Salem, Mass., July-Dec. 1884. Bull. v. 16, p. 113-21)
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- (2) ——— Address on the development of "Evolution" in the United States. Salem, Mass., 1877. (In Amer. Assoc. Adv. Sc. Proc. Aug. 1876. v. 25, p. 137-76)
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- MULDER BOSGOED, D[irk]. *Bibliotheca ichthyologica et piscatoria-catalogus van boeken en geschriften over de natuurlijke geschiedenis van de visschen en walvisschen, de kunstmatige vischteelt, de visscherijen, de wetgeving op de visscherijen, enz . . . bewerkt door . . . Haarlem, De Erven Loosjes, 1874. 26 + 474 p.*
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Classified list. Superseded by DEAN (q.v.)
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v. 2-3 Bibliography & literature of museums. A classified list arranged alphabetically by the name of the place. Not particularly strong on American material.
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Excellent biographies of many of the leading naturalists who were members of the Academy.
For individual naturalists, see BIBLIOGRAPHY OF BIOGRAPHIES, following the GEOGRAPHICAL INDEX.
- (2) ——— A history of the first half-century of the National Academy of Sciences: 1863-1913. Wash. 1913. [13] + 399 p. 4°.
p. 1-23 deals with the founding of the Academy; p. 25-102, with the annals of the Academy; and chapter 3, contains biographical sketches of the members of the Academy at its foundation. See also Nat. Acad. Sc. (1863)
- NEWBERRY, J[ohn] S[trong]. . . . *Geology of Ohio: historical sketch.* Columbus, 1873. (In Geol. Surv. Ohio. Rept. Geology. v. 1, p. 1-15)
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- NEWTON, Henry. [Historical sketch of explorations in the Upper Missouri region]. Washington, 1880. (In U. S. Geogr. & Geol. Surv. Rocky Mt. Region. Geology of the Black Hills of Dakota. ch. 1, p. 5-21)

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——— Geologic literature on North America. Wash. Gov't print. office, 1923. 1167 p. (In U. S. Geol. Surv. Bull. no. 746)

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NICKLES, John M[ilton], and BASSLER, Ray S[mith]. A synopsis of American fossil Bryozoa, including bibliography and synonymy. Washington Gov't print. off., 1900. 663 p. (In U. S. Geol. Surv. Bull. no. 173)

Bibliography, p. 125-663. Classified catalogue of genera and species, p. 161-440. List of papers arranged by authors, p. 469-561. Foregoing list classified, p. 562-663.

(1) NOLAN, Edward J[ames]. A short history of the Academy of Natural Sciences of Philadelphia. Phila., The Academy, 1909. 38 p. pl. port.

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(2) ———, ed. An index to the scientific contents of the Journal and Proceedings of the Academy . . . 1817-1910; published in commemoration of the centenary of the Academy, March 21, 1912; ed. by E. J. Nolan. Phila., 1913. 1419 p.

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NOURSE, J[oseph] E[verett]. American explorations in the ice zones; the expeditions of De Haven, Kane, Rodgers, Hayes, Hall, Schwatka, and De Long . . . with a brief notice of the Antarctic cruise under Lieut. Wilkes, 1840 . . . prepared chiefly from the official sources . . . Bost. Lothrop & Co., 1884. 578 p. illus. pl. maps.

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A revision and enlargement of: ARNOLD, Ralph. Bibliography of the literature referring to the geology of Washington. (In Wash. Geol. Surv. Ann. Rept. 1901. v. 1, pt. 6, p. 323-38)

(1) O'HARRA, Cleophas C[isney]. A bibliography of contributions to the geology and geography of the Black Hills region. Rapid City, S. D., South Dakota

School of Mines, Dept. of Geology, Apr. 1900. (In South Dakota School of Mines. Bull. no. 4, p. 45-86)

Annotated and chronological list.

- (2) ——— A history of the early explorations and of the progress of geological investigation in the Black Hills region. Rapid City, S. D., South Dakota School of Mines, Dept. of Geology, Apr. 1900. (In South Dakota School of Mines. Bull. no. 4, p. 7-44, 1 pl. 7 maps)

- (3) ——— . . . A bibliography of the geology and mining interests of the Black Hills region. Rapid City, S. D., May, 1917. 216 + 7 p. (In South Dakota School of Mines. Dept. of Geol. Bull. no. 11)

Well annotated. Chronologically arranged material.

Some general bibliographies on palaeontology, geology and mineralogy, p. 212-15. Bibliography of biographical memoirs of naturalists who have worked in the Black Hills region, p. 215-16.

- (4) ——— The geology of Alleghany County. Baltimore, 1900. (In Maryland Geol. Surv. Alleghany Co. p. 57-163)

Historical review, p. 60-9; Bibliography, arranged chronologically, p. 69-85. (177 titles)

ORTON, Edward, Jr. Geological surveys of Ohio. (In Jour. Geol. v. 2, no. 5, p. 502-16. July-Aug. 1894)

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OSBORN, Henry Fairfield. The State Museum and state progress. (In Science. n. s. v. 18, p. 493-504. Oct. 18, 1912)

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Brief story of the various phases of zoological activity, and an enumeration of the most important workers in the respective branches.

- (1) PALMER, T[heodore] P[almer]. Personalia in ornithology. (In Auk. v. 34, p. 445-52. 1917)

On p. 449-50 are brief notes concerning the location of a number of the early American ornithologists.

- (2) ——— Index generum mammalium: a list of the genera and families of mammals . . . prepared under the direction of Dr. C. Hart Merriam . . . Washington, Gov't printing office, 1904. 984 p. (In U. S. Dept. Agric. Biol. Surv. North American Fauna. no. 23)

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Pt. 1 Introduction, p. 7-69; Alphabetical index of genera, p. 70-717.

Pt. 2. Alphabetical index of families and sub-families, p. 719-76.

Pt. 3. Index of genera arranged according to orders and families; Index. p. 777-984.

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Full collation of the various editions of the Lewis & Clark Expedition (1804), q.v.
- PARIS, E[douard] G[abriel]. Index Bryologicus sive enumeratio muscorum hucusque cognitorum adjunctis synonymio distributioneque geographica locupletissimis quem conscripsit . . . Paris, 1894–98. 2 + 1380 p.
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- PEIRCE, George J[ames]. American botany. Tucson, Ariz., April, 1911. (In *Plant World*. v. 14, no. 4, p. 81–7)
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- PENHALLOW, D[avid] P[earce]. A review of Canadian botany from the first settlement of New France to the end of the nineteenth century, in two parts. Montreal, 1887 & 1897. (In *Royal Soc. Canada. Proc. & Trans.* v. 5, sect. 4, p. 45–61, 1887; & ser. 2, v. 3, sect. 4, p. 3–56, 1897)
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- (1) PERKINS, George Henry. List of reports on the geology of Vermont, 1845–1900. Albany, N. Y., 1902. (In *Vt. Geol. Surv. Rept. State Geol.* 1901–2. p. 14–21)
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- (2) ——— List of works on the geology of Vermont. Montpelier, Vt., 1904. (In *Vt. Geol. Surv. Rept.* v. 4, p. 16–21)
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- PFEIFFER, Ludovicus. Nomenclator botanicus, nominum ad finem anni 1858 publici juris factorum, classes, ordines, tribus, familias, divisiones, genera, subgenera vel sectiones designantium enumeratio alphabetico, adjectis auctoribus, temporibus, locis systematicis apud varios, notis literariis atque etymologicis et synonymis . . . Casselius, Sumptibus Theodori Fischeri, 1873-74. 2 v. 4°. v. 1, A-K, 1873-74. 4 + 1876 p. v. 2, L-Z, 1874. 1697 p.
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Delivered Jan. 4, 1841. Natural history discussed on p. 21-33. Extracts also in its Proc. Bull. no. 1, p. 19-30. See also NAT. INST. PROM. SC. (1840).
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- PRATT, Daniel J. Manual of the Albany Institute: prepared under the order of the Institute, March, 1870. (In Albany Inst. Trans. v. 6, p. 299-344)
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See also ALBANY INSTITUTE (1824)
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2 Subject classification. (Flora of N. A. p. 469-71)

First pub. 1851. 547 p. with A Suppl. 1853. 59 p.

- (1) PROSSER, Charles S[mith]. Stratigraphic geology. (In Ohio Acad. Sc. Proc. v. 4, pt. 7. p. 340-48. 1905)

Rd before the Academy Dec. 28, 1905. Constitutes the 14th Ann. Rept. of the Acad. Historical survey of American stratigraphic geology, with especial reference to Ohio.

- (2) ——— Lower Devonian: historical review and bibliography. Baltimore, 1913. (In Maryland Geol. Surv. Lower Devonian. p. 42-66)

History, p. 42-55; Bibliography, chronologically arranged, p. 55-66.

PROVIDENCE FRANKLIN SOCIETY. Index of publications bearing upon the geology and minerology of Rhode Island, chronologically arranged. Providence, 1887. (In its Rept. Geol. Rhode Island. p. 2-57)

Annotated chronological bibliography. See also Rhode Island Geol. Surv. (1839)

PUTNAM, F[rederic] W[ard], ed. The naturalists' directory; part 2: North America and the West Indies. Salem, Mass., Oct. 1865. (In Essex Inst. Proc. v. 4, appx. 84 + 16 p.)

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Historical account and description of the famous colonial garden.

RAFINESQUE, C[onstantine] S[chmaltz]. Survey of the progress and actual state of natural sciences in the United States of America, from the beginning of this century to the present time. N. Y., Dec. 1817. (In Amer. Monthly Mag. & Critical Review. v. 2, no. 2, p. 81-8)

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- (1) RATHBUN, Richard. . . . Descriptive catalogue of the collection illustrating the scientific investigation of the sea and fresh waters . . . Washington, 1883. (In U. S. Nat. Mus. Bull. no. 27. p. 511-621)

This is section "G" of the Report upon the American section of the Great International Fisheries Exhibition," held in London during 1883; ed. by G. B. Goode.

The Introduction, p. 513-41, gives a rapid survey of the American collections of aquatic life, made on the waters of the globe, during the century by private collectors, museums, scientific societies, exploring expeditions, and natural history surveys.

- (2) ——— The Columbian Institute for the Promotion of Arts and Sciences: a Washington Society of 1816-1838, which established a Museum and Botanic Garden under government patronage. Washington, Gov't printing office, Oct. 18, 1917. 3 + 87 p. (In U. S. Nat. Mus. Bull. no. 101)

Excellent study of the part played by the Institute in developing a national spirit in science.

See also *Columbian Institute Prom. Sc.* (1816).

- (3) ——— The United States National Museum: an account of the buildings occupied by the national collections. Washington, 1905. (In *U. S. Nat. Mus. Ann. Rept.* for 1903. p. 177–309, 29 pl.)

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- (4) ——— . . . The National Institute: 1840–1862 . . . Washington, 1924. (In *U. S. Nat. Mus. Bull.* no. —)

A posthumous publication. See also *Nat. Inst. Prom. Sc.* (1840).

At this writing still in MS.

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See also *Linnaean Soc. Lancaster, Pa.* (1862)

- (1) REA, Paul Marshall. A directory of American museums. Buffalo, 1910. 360 p. (In *Buffalo Soc. Nat. Sc.* v. 10, no. 1)

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- (2) ——— A contribution to early museum history in America. (In *Amer. Assoc. Mus. Proc.* v. 9, p. 53–65. 1915)

A history of the first public museum in the U. S., the Charleston (S. C.) Museum (1773), q.v. See also *Science*. n. s. v. 57, p. 677–80. June 15, 1923.

- (3) ——— History of ornithology in South Carolina. Charleston, S. C., 1910. (In *Charleston Museum. Contr.* no. 1. pref. p. 12–21)

Included as an introduction to WAYNE, A. T. *Birds of S. C.* See also *Contr.* no. 3, pref. p. 5–6. 1917.

REHDER, Alfred. . . . The Bradley Bibliography; a guide to the literature of the woody plants of the world published before the beginning of the twentieth century; compiled at the Arnold Arboretum of Harvard University, under the direction of Charles Sprague Sargent, by Alfred Rehder. Cambridge, Mass., The Arnold Arboretum, 1911–18. 5 v. 4°.

v. 1, 1911, Dendrology—general;

v. 2, 1912, Dendrology—taxonomic arrangement

v. 3, 1915, Economic products & uses of woody plants; Arboriculture

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See also SMITHSONIAN INSTITUTION (1846)

- (2) ——— . . . List of publications of the Smithsonian Institution, 1846-1903. Wash. 1903. 99 p. Pub. no. 1376.

See also SMITHSONIAN INSTITUTION (1846): Bibliography.

- (1) RICE, William North. The geology of James Dwight Dana. New Haven, 1915. (In RICE, W. N., and others. Problems of American geology. ch. 1, p. 1-42)

The Mrs. Hepsa Ely Silliman Memorial Lectures.

- (2) ——— . . . The contributions of America to geology. (In Science. n. s. v. 25, p. 161-75. Feb. 1, 1907)

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- (1) RIDGWAY, Robert. Nomenclature of North American birds chiefly contained in the United States National Museum. Washington, Gov't print. office, 1881. 94 p. (In U. S. Nat. Mus. Bull. no. 21. Pub. no. 422)

Additions in U. S. Nat. Mus. Proc. v. 3, p. 163-246.

- (2) ——— The birds of North and Middle America: a descriptive catalogue of the higher groups, genera, species, and subspecies of birds known to occur in North America, from the Arctic lands to the Isthmus of Panama, the West Indies and other islands of the Caribbean Sea, and the Galapagos Archipelago. Wash. Gov't print. office, 1901-date. (In U. S. Nat. Mus. Bull. no. 50)

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Recent list of Virginia ornithology, p. 22-4.

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MORSE, E. S., (2), 1877, (U. S.)

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BAKER, M., 1900, (Northwest Bdry. Surv.)

BARNHART, (5), 1919, (Bot. Wilkes Exped.)

BENT, (2), 1915, (U. S. Mountains)

BLANKINSHIP, 1905, (Montana)

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 SPAULDING, 1908, (St. Louis, Botanical)
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 HASSE, (2), 1907-20, (State Documents)
 HAY, R., 1896, (Kan.)
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 SAMPSON, 1890, (Mo.)
 SELLARDS, (1), 1907, (Fla.)
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 STOCKBRIDGE, 1911, (White Mts. & Appalachians)
 TROUT & MYERS, 1915, (Okla.)
 VAN HISE, 1892, (Archæan & Algonkian)
 VAN HISE & LEITH, (1), 1909, (Pre-Cambrian)
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 VOGDES, (2), 1905, (Cal.)
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 WILLIAMS, H. S., 1891, (Devonian & Carboniferous)
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 WINCHELL, A., (2), 1890, (Taconic System)
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 VOGDES, (3), (Cal.-Trask.), 1907

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 CLARK, (1), 1898, (Maryland)
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 CLARKE, (3), 1921, (N. Y. & General)
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DALE, 1894, (Mt. Greylock)
 DALL & HARRIS, 1892, (Neocene)
 DANA, J. D., (1), 1856
 DANA, J. D., (2), 1886, (Berkshire Co., Mass.)
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 FAIRCHILD, (2), 1898, (Glacial)
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 GREGORY, H. E., (1), 1918, (Land forms)

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 MARCOU, Jules, (1), 1884, (Taconic System)
 MARTIN, G. C., 1902, (Garret Co., Md.)
 MERRILL, G. P., 1906, (U. S.)
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 MILLER, S. A., (2), 1879, (N. A.)
 NEWBERRY, 1873, (Ohio)
 O'HARRA, (4), 1900, (Alleghany Co., Md.)
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 SELLARDS, (2), 1908, (Fla.)
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 MERRILL, G. P., (1), 1906

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 BRUSH, 1883
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 FORD, 1918
 GOODE, (1), 1886
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 GORDON, 1922, (Pa.)
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 MERRILL, G. P., (1), 1906
 PENFIELD, 1901, (At Yale Univ.)
 RAFINESQUE, 1817
 WINCHELL, H. V., 1894, (Lake Superior)

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 MILLER, S. A., (2), 1879, (Literature)
 NICKLES, 1909-date, (For 1908-date)
 SHATTUCK, (2), 1904, (Md.)
 WEEKS, F. B., (1), 1902, (Formation names)
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MILLER, S. A., (2), 1879, (Literature)
 SHATTUCK, (2), 1904, (Md.)

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HALL, J., (3), 1883, (N. Y. State)

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For the Biography of special groups of workers, consult name of the special field, sub-head Biography, as BOTANY: Biography.

For the Biography of an individual naturalist, see the BIBLIOGRAPHY OF BIOGRAPHIES, following the Geographical Index.

History:

BALLARD, 1897, (Berkshire Co., Mass.)
 BARTON, 1807
 BENJAMIN, (2), 1893, (N. Y. City)
 BRAGG, (2), 1920, (S. C.)
 CENTURY, 1918, (Amer. J. Sc.)
 CLARKE, (3), 1921, (N. Y. State)
 CLINTON, 1815
 COBB, 1896, (Univ. N. C.)
 DE KAY, 1826
 FAIRCHILD, (3), 1923, (Hist. Amer. Assoc. Adv. Sc.)
 FARRINGTON, 1915, (Museums)
 FEATHERSTONHAUGH, 1832
 FINCH, 1833

 GOODE, (1), 1886
 GOODE, (2), 1888
 GOODE, (3), 1889
 GOODE, (6), 1892
 GOODE, (7), 1897
 GOULD, (2), 1865, (Mass. & Bost.)
 HOLLIDAY, 1914, (New Harmony, Indiana)
 HOSACK, (2), 1811, (Courses at N. Y. U.)
 JARVIS, 1836

JORDAN, (1), 1910, (Amer. Men of Science)
 KINGSLEY, W. L., 1879, (Science at Yale College)
 KLEM, 1914, (Hist. Sc. St. Louis)
 LUCAS, 1908, (Linnaeus & Amer. Nat. Hist.)
 MERRILL, G. P., (1), 1906, (Geol., Pal., Min., Zool.)
 MORSE, (2), 1887, (Evolution)

OSBORN, 1912, (N. Y. State)
 PORTER, 1896, (Penn-German in Nat. Sc.)
 QUINCY, 1840, (Science at Harvard College)
 RAFINESQUE, 1817
 BOTHROCK, 1893, (Hist. Biology Univ. Pa.)
 SEWARD, 1842, (N. Y. State)
 SHECUT, 1819, (Charleston, S. C.)
 SILLIMAN, (2), 1847
 STEVENS, (1), 1909, (Southern Bot. & Civil War)
 STEVENS, (2), 1920, (Radicalism & research)
 TYLER, 1915, (Va.)
 WARREN, J. C., 1853, (Mass. & Bost.)
 WELLS, 1851-71, (Annual résumés, 1850-70)
 WILDER, 1881, (Boston & Mass.)

For the history of a special branch of Natural History, consult name of that branch, sub-head History, as MINERALOGY: History.

NEOCENE.

Bibliography:

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 DARTON, (1), 1896, (1732-1891)
 MILLER, S. A., (2), 1879, (Literature)
 NICKLES, 1909-date, (For 1908-date)
 WEEKS, F. B., (1), 1902, (Formation names)
 WEEKS, F. B., (2), (3), (4), 1902-6, (For 1892-1905)
 WILLIS, 1912, (Index to stratigraphy)

See also MIOCENE, PLIOCENE, TERTIARY, & CENOZOIC: Bibliography.

History:

DALL & HARRIS, 1892, (N. A.)
 MILLER, S. A., (2), 1879, (Literature)

See also MIOCENE, PLIOCENE, TERTIARY, & CENOZOIC: History.

NEWARK SYSTEM.

Bibliography & History:

MILLER, S. A., (2), 1879, (Literature)
 RUSSELL, 1892, (N. A.)

See also MESOZOIC.

NOMENCLATURE (BOTANICAL).

Bibliography:

CHRISTENSEN, 1906, (Index Filicum)
 FARLOW, 1905, (Index N. A. Fungi)
 INTERNATIONAL CAT. SC. LIT., 1901-date
 JACKSON, B. D., (2), 1893, (Index Kewensis)
 LINDAU & SYDOW, 1908, (Fungi & Lichens)
 PARIS, 1894, (Index Bryologicus)

PFEIFFER, 1873, (Nomenclator Botanicus)

WATSON, 1878, (Index N. A. Botany)

History:

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NOMENCLATURE (GEOLOGICAL & PALAEOONTOLOGICAL)

Bibliography:

CLARK, (2), 1891, (Eocene)

DALL & HARRIS, 1892, (Neocene)

RUSSELL, 1892, (Newark System)

VAN HISE, 1892, (Archaean & Algonkian)

VAN HISE & LEITH, (1), 1909, (Pre-Cambrian)

WALCOTT, (2), 1891, (Cambrian)

WEEKS, F. B., (1), 1902, (Formation names)

WHITE, 1891, (Cretaceous)

WILLIAMS, 1891, (Devonian & Carboniferous)

See also GEOLOGY: Bibliography & History.

PALAEOONTOLOGY: Bibliography & History.

TACONIC SYSTEM: History.

History:

CLARK, (2), 1891, (Eocene)

DALL & HARRIS, 1892, (Neocene)

DANA, J. D., (3), 1896, (Taconic System)

HALL, J., 1878, (Hudson River Group)

HUNT, (1), 1883, (Taconic System)

MARCOU, Jules, 1884, (Taconic System)

MERRILL, G. P., (1), 1906

RUSSELL, 1892, (Newark System)

VAN HISE, 1892, (Archaean & Algonkian)

VAN HISE & LEITH, (1), 1909, (Pre-Cambrian)

WALCOTT, (1), 1888, (Taconic System)

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WEEKS, F. B., (1), 1902, (Formation names)

WHITE, 1891, (Cretaceous)

WILLIAMS, 1891, (Devonian & Carboniferous)

WILLIS, 1912, (Index to Stratigraphy, N. A.)

See also GEOLOGY: Bibliography & History.

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CATLOW & REEVE, 1845, (Conchology)

DYAR, 1902, (Lepidoptera, N. A.)

GIEBEL, 1872, (Ornithology)

INTERNATIONAL CAT. SC. LIT., 1901-date

MARSHALL, 1873, (Nomenclator Zoologicus)

PALMER, (2), 1904, (Index Mammalium)

RIDGWAY, (2), 1901, (Ornithology N. A.)

SCUDDER, (5), 1901, (Index N. A. Orthoptera)

SCUDDER, (6), 1882, (Nomenclator Zoologicus)

SHERBORN, (1), 1893, (Index Foraminifera)

SHERBORN, (2), 1902, (Index animalium, 1758-1800)

TROUCESSART, 1897, (Catalogus Mammalium)

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ZOOLOGY: Bibliography.

History:

JORDAN, (4), (5), (6), 1917-20, (Ichthyology)

RIDGWAY, (1), 1881, (Ornithology)

SCUDDER, (8), 1875, (Butterflies)

TROTTER, 1910, (N. A. Land Birds)

See also above: Bibliography.

PALAEONTOLOGY: History.

ZOOLOGY: History.

ORDOVICIAN, see SILURIAN (LOWER).

ORNITHOLOGY.

Bibliography:

ANDERSON, 1906, (Iowa)

BURNS, (1), 1919, (Chester Co., Pa.)

BUTLER, 1894, (Indiana)

CORY, 1901, (Ill. & Wis.)

COUES, (1), 1878

FAXON & HOFFMANN, 1897, (Berkshire Co., Mass.)

GIEBEL, 1872

GRINNELL, 1909, (California)

KNIGHT, 1908, (Maine)

LOOMIS, 1891, (S. C.)

MC ATEE, 1918, (D. C.)

RIDGWAY, (2), 1901, (Nomenclature, synonymy)

RIVES, 1890, (Va.)

SAGE, 1913, (Conn.)

SCLATER, 1912, (Col.)

THAYER, 1913, (Thayer's Library)

TOWNSEND, 1905, (Essex Co., Mass.)

WATERHOUSE, 1889, (Index Avium)

WAYNE, 1910, (S. C.)

WHEATON, 1882, (Ohio)

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ANDERSON, 1906, (Iowa)

BURNS, (1), 1919, (Chester Co., Pa.)

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COUES, (2), 1903

FOWLER, (2), 1862

HANKINSON, 1897, (Michigan)

LOOMIS, 1891, (S. C.)

MC ATEE, 1918, (D. C.)

PEARSON, 1908, (N. C.)

REA, (3), 1910, (S. C.)

RIDGWAY, 1881, (Nomenclature)

RIVES, 1890, (Va.)

ROCKWELL, 1909, (Colorado)

STONE, W., (1), 1916, (Western States)

STONE, W., (2), 1899, (Phila.)

TOWNSEND, 1905, (Essex Co., Mass.)

WIDMANN, 1907, (Mo.)

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KNOWLTON, 1898, (Cretaceous & Tertiary)

LESLEY, (1), 1889, (Dictionary Pa. Fossils)

LESQUEREUX, 1876, (Cretaceous)

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History:

LESQUEREUX, 1876, (Cretaceous)

MILLER, S. A., (2), 1879, (Literature, Mesozoic, & Cenozoic)

WARD, (1), 1885

WARD, (2), 1885, (Laramie Group)

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BARBOUR & FISHER, 1902, (Neb.)

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BOYLE, 1893, (Mesozoic Invertebrata)

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BRITISH MUS. NAT. HIST., 1903

BROWN, S. B., 1901, (W. Va.)

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CLARK, (3), 1916, (Upper Cretaceous, Md.)

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CLARK & TWITCHELL, 1915, (Mesozoic Echinodermata)

CLARKE, J. M., (2), 1894, (N. Y.)

COCKRILL, 1911, (Tenn.)

DALL & HARRIS, 1892, (Neocene)

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GIRARD, 1852, (For 1851)

GRABAU & SHIMER, 1910, (N. A. Invert.)

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 HARRIS, 1894, (Tertiary Arkansas)
 HAY, O. P., 1902, (Vertebrata)
 HITCHCOCK, Ed., (3), 1858, (Fossil Footmarks)
 INTERNATIONAL CAT. SC. LITERATURE, (Current)
 JONES, 1914, (Colorado)
 KEYES, (1), 1893, (Iowa)
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 KINDLE, 1897, (Indiana)
 KNOWLTON, 1898, (Cretaceous & Tertiary Plants)
 LANEY & WOOD, 1909, (N. C.)
 LESLEY, (1), 1889, (Dictionary Fossils Pa.)
 MARCOU, 1885, (Invertebrates)
 MARGEEIE, 1896, (Bibliography)
 MATHEWS, (1), 1898, (Maryland)
 NICKLES & BASSLER, 1900, (Bryozoa)
 NICKLES, 1908, (U. S. 1908—date)
 O'DONNELL, 1913, (Washington State)
 O'HARRA, (1), 1900, (Black Hills, S. D.)
 O'HARRA, (3), 1917, (Black Hills, S. D.)
 PROSSER, (2), 1913, (Lower Devonian, Md.)
 RUSSELL, 1892, (Newark System)
 SAMPSON, 1890, (Mo.)
 SCHUCHERT, (2), 1897, (Brachiopoda)
 SCUDDER, (3), 1890, (Insects)
 SELLARDS, (1), 1907, (Fla.)
 SHATTUCK, (2), 1904, (Miocene, Md.)
 SHATTUCK, (3), 1906, (Pliocene & Pleistocene)
 SHUMARD, 1865, (Palaeozoic Echinodermata)
 TROUT & MYERS, 1915, (Oklahoma)
 TRUBNER, 1859
 VAN HISE, 1892, (Archaeon & Algonkian)
 VAN HISE & LEITH, (1), 1909, (Pre-Cambrian)
 VOGDES, (1), 1893, (Crustacea)
 VOGDES, (2), 1905, (California)
 VOGDES, (4), 1903, (California)
 WALCOTT, (2), 1891, (Cambrian)
 WALCOTT, (3), 1890, (Olenellus Fauna)
 WARD, (1), 1885, (Palaeobotany)
 WARD, (2), 1885, (Laramie Group Flora)
 WARMAN, 1880, 1893, 1901-3, (U. S. Geol. Surv.)
 WATSON, T. L., 1897, (Virginia)
 WEEKS, F. B., (2) & (3), 1902, (U. S. for 1892-1900)
 WEEKS, F. B., (4), 1906, (U. S. for 1901-5)
 WEEKS, F. B. & NICKLES, 1909, (U. S. for 1906-7)
 WELLER, 1898, (Carboniferous Invertebrata)
 WHITE, 1891, (Cretaceous)
 WHITE & NICHOLSON, 1897, (Invertebrates)
 WHITNEY, (2), 1882
 WILLIAMS, 1891, (Devonian & Carboniferous)
 WINCHELL, N. H., (1), 1873, (Minnesota)

See also NATURAL HISTORY: Bibliography; PALAEOBOTANY: Bibliography;

Biography:

MERRILL, G. P., (1), 1906

See also GEOLOGY: Biography.

NATURAL HISTORY (GENERAL): Biography.

ZOOLOGY: Biography.

BOTANY: Biography.

History:

BAKER, F. C., 1911, (Lymnaeidae)

BERRY, (2), 1911, (Lower Cretaceous, Md.)

BLATCHLEY, 1917, (Indiana)

CARPENTER, 1857, (Mollusca Pacific Coast)

CLARK, (2), 1891, (Eocene)

CLARK, (3), 1916, (Upper Cretaceous, Md.)

CLARK & MARTIN, 1901, (Eocene, Md.)

CLARK, (4), 1893, (Cretaceous & Tertiary, N. J.)

DALL & HARRIS, 1892, (Neocene)

GOODE, (2), 1888

GREGORY, (1), 1918, (Amer. J. Sc.)

HUNT, (3), 1878, (Pre-Silurian Geol.)

LESQUEREUX, 1876, (Cretaceous Flora N. A.)

LULL, 1918, (Vertebrates)

MARCOU, Jules, (2), 1894, (Texas Cretaceous)

MERRILL, G. P., (1), 1906

MILLER, (2), 1879, (N. A.)

PROSSER, (2), 1913, (Lower Devonian, Md.)

SHATTUCK, (2), 1904, (Miocene, Md.)

SHATTUCK, (3), 1906, (Pliocene & Pleistocene, Md.)

SMITH, E. A., (2), 1914, (Gulf coast)

VAN HISE, 1892, (Archaean & Algonkian)

VAN HISE & LEITH, (1), 1909, (Pre-Cambrian)

WALCOTT, (2), 1891, (Cambrian)

WALCOTT, (3), 1890, (Olenellus Fauna)

WARD, (1), 1885, (Palaeobotany)

WARD, (2), 1885, (Laramie Group Flora)

WHITE, 1891, (Cretaceous)

WILLIAMS, 1891, (Devonian & Carboniferous)

WINCHELL, A., (2), 1890, (Opinions Older Rocks)

See also BOTANY:History.

GEOLOGY: History.

NATURAL HISTORY (GENERAL): History.

ZOOLOGY: History.

PALAEOZOIC.

Bibliography:

DARTON, (1), 1896, (For 1732-1891)

NICKLES, 1909-date, (For 1908-date)

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VOGDES, (1), 1893, (Crustacea)

WEEKS, F. B., (1), 1902, (Formation names)

WEEKS, F. B., (2), (3), (4), 1902-6, (For 1892-1905)

WILLIS, 1912, (Index to stratigraphy)

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CAMBRIAN, CARBONIFEROUS, DEVONIAN, PERMIAN & SILURIAN: Bibliography.

History:

HUNT, (3), 1878, (Pre-Silurian Geol.)

WINCHELL, A., (2), 1890, (Opinions Older Rocks)

See also GEOLOGY, PALAEOONTOLOGY: History.

CAMBRIAN, CARBONIFEROUS, DEVONIAN, PERMIAN, & SILURIAN: History.

PENNSYLVANIAN, see CARBONIFEROUS (UPPER)

PERIODICALS, (SCIENTIFIC), see JOURNALS, (SCIENTIFIC)

PERMIAN.

Bibliography:

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History:

MERRILL, G. P., (1), 1906

WILLIAMS, 1891

See also PALAEOZOIC, DEVONIAN & CARBONIFEROUS: History.

PETROLOGY.

Bibliography:

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History:

PIRSSON, 1918

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LEVERETT & TAYLOR, 1915, (Ind. & Mich.)

MILLER, (2), 1879, (Literature)

NICKLES, 1909-date, (For 1908-date)

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WILLIS, 1912, (Index to stratigraphy)

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History:

SHATTUCK, (3), 1906, (Md.)

See also CENOZOIC & QUATERNARY: History.

PLIOCENE.

Bibliography:

DARTON, (1), 1896, (For 1732-1891)

MILLER, (2), 1879, (Literature)

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WEEKS, F. B., (1), 1902, (Formation names)

WEEKS, F. B., (2), (3), (4), 1902-6, (For 1892-1905)

WILLIS, 1912, (Index to straigraphy)

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History:

SHATTUCK, (3), 1906, (Md.)

See also TERTIARY & CENOZOIC: History.

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Bibliography:

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THOMPSON, D. W., 1885, (For 1861-1883)

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History:

See ZOOLOGY: History.

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History:

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REPTILIA, see ZOOLOGY.

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SCUDDER, (1), 1876

SMITH. INST., 1866

TRUBNER, 1859

See also SOCIETIES, (SCIENTIFIC): Bibliography.

JOURNALS, (SCIENTIFIC): Bibliography.

History:

BENTHAM, 1867

FEATHERSTONHAUGH, 1832

GOODE, (2), 1886

MERRILL, G. P., (1), 1906

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JOURNALS, (SCIENTIFIC): History.

SHELLS, see CONCHOLOGY.

SILURIAN (LOWER & UPPER)

Bibliography:

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WEEKS, F. B., (1), 1902, (Formation names)

WEEKS, F. B., (2), (3), (4), 1902-6, (For 1892-1905)

WILLIS, 1912, (Index to stratigraphy)

WINCHELL & ULRICH, 1895, (Lower S., Upper Mississippi Valley)

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History:

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GRIFFIN, (Historical), 1907

NOLAN, (2), 1913, (Index Pub. Phila. Acad.)

RHEES, (2), 1903, (Smith. Inst.)

SMITH. INST., 1866

TEDDER, 1911

THOMPSON, 1908

TRUBNER, 1859

WEEKS, S. B., 1891

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History:

ALBANY INST., 1830, (Albany Soc.)

BACHE, 1852

BALDWIN, 1901, (Conn. Acad. A. & Sc.)

BARNHART, (3), 1917, (N. Y. Acad. Sc.)

BENTHAM, 1867

BINNEY, Amos, (1), 1845, (Bost. Soc. Nat. Hist.)

BOLTON, (2), 1896, (Smith. Inst.)

BOUVE, 1880, (Bost. Soc. Nat. Hist. & Linn. Soc. New England)

BREWER, (1), 1901

CLINTON, 1815

COGSWELL, 1842

CRESSON, (1), 1909, (Amer. Ent. Soc.)

DWIGHT, 1826

ESSEX INSTITUTE, (1), & (2), 1898 & 1865, (E. I.)

FAIRCHILD, (1), 1887, (N. Y. Acad. Sc.)

FAIRCHILD, (3), 1923, (Amer. Assoc. Adv. Sc.)

FEATHERSTONHAUGH, 1832

FINCH, 1833

FORBES, 1907, (III.)

FOWLER, 1884, (Essex Inst.)

GOODE, (2), 1888

GOODE, (4), 1890

GOODE, (5), 1892

GOODE, (7), 1897, (Smith. Inst.)

GOULD, 1842, (Bost. Soc. Nat. Hist.)

GREVE, 1904, (Cincinnati)

HALE, 1896, (Amer. Assoc. Adv. Sc.)

HALL, 1885

HIGLEY, 1902, (Chic. Acad. Sc.)

HITCHCOCK, Ed., (4), 1857, (Assoc. Amer. Geol. & Nat.)
HOWLAND, 1907, (Buffalo Soc. Nat. Sc.)

JARVIS, 1836

JOHNSON, 1910, (Springfield, Mass. Mus. Nat. Hist.)

KELBY, 1905, (N. Y. Hist. Soc.)

KINGSLEY, 1882, (Phila. Acad. Nat. Sc.)

KLEM, 1914, (Acad. Sc. St. Louis)

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MARTIN, 1898, (Amer. Assoc. Adv. Sc.)

MEADS, 1872, (Albany Societies)

MERRILL, G. P., (1), 1906

MORTON, 1841, (Phila. Acad. Nat. Sc.)

NATIONAL ACAD. SC., (2), 1913, (Nat. Acad. Sc.)

NOLAN, (1), 1909, (Phila. Acad. Nat. Sc.)

POINSETT, 1841, (Nat. Inst. Prom. Sc.)

PRATT, D. J., 1870, (Albany Inst.)

RATHBUN, (2), 1917, (Columbian Inst.)

RATHBUN, (4), 1921, (Nat. Inst. Prom. Sc.)

RATHVON, 1866, (Linn. Soc., Lancaster, Pa.)

RHEES, 1901, (Smith. Inst.)

RUSCHENBERGER, 1852, (Phila. Acad. Nat. Sc.)

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SEEVER, 1900, (Mo. Hist. & Phil. Soc.)

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VAN AMRINGE, 1828, (Chester Co., Pa.)

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DUCATEL, 1840, (Maryland)

ELLIS, 1903, (N. Y.)

HASSE, (2), 1907

HOLMES, (2), 1891, (S. C.)

HOPKINS, (1) & (2), 1904, (Ind.)

INGHAM, 1895, (Index Pubs. Pa.)

MARSH, 1867

MATHEWS, (1), 1897, (Maryland)

MICH. GEOL. & BIOL. SURV., 1912, (Mich.)

PERKINS, 1902, (Vt.)

PRIME, 1879

SELLARDS, (1), 1908, (Fla.)

VOGDEN, (4), 1903, (Cal.)

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 HASSE, (2), 1908, (Index Econ. Material)
 HITCHCOCK, E., (2), 1841, (Geol. Surv.)
 HITCHCOCK, E., (3), 1858, (Fossil Footmarks)
 LOVERING, 1881, (Hist. Boston & Vicinity)
 MERRILL, G. P., (1), 1906, (Hist. Geol.)
 MERRILL, G. P., (2), 1920, (State Surv. to 1885)
 STRONG, 1880, (Mass. Hort. Soc.)
 WILDER, 1881, (Horticulture Boston & Vicinity)

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 ESSEX COUNTY; GREYLOCK, MT.; NEW ENGLAND; SALEM; SPRING-
 FIELD.

MICHIGAN.

- BAYLEY, 1904, (Bib. Geol. Iron District)
 BRADISH, 1889, (Hist. Geol. Surv. & Explor.)
 HANKINSON, 1897, (Hist. Ornithology)
 HAYES, 1911, (Geol. Surv.)
 IRVING, (2), 1892, (Bib. Geol. Penokee Iron District)
 LANE, 1904, (Hist. Geol.)
 LEVERETT, 1915, (Hist. Pleistocene)
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 MERRILL, G. P., (2), 1920, (State Surv. to 1885)
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 WINCHELL, A., (1), 1861, (Hist. Geol.)

MIDDLETOWN, CONN.

- JOHNSTON, 1877, (Hist. Mus. Wesleyan Univ.)

MINNESOTA.

- GREGORY, Win., 1915, (Bib. Geol.)
HAYES, 1911, (Geol. Surv.)
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UPHAM, (2), 1914, (Explor. Red & Minn. Rivers)
WINCHELL, N. H., (1), 1873, (Hist. & Bib. Nat. Hist.)
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WINCHELL, N. H., (3), 1882, (Bib. Min.)
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HILGARD, 1901, (Geol. Surv.)
MERRILL, G. P., (1), 1906, (Hist. Geol.)
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MISSOURI.

- BROADHEAD, (1), 1886, (Geol. Surv.)
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KLEM, 1914, (Hist. Sc. St. Louis)
MERRILL, G. P., (1), 1906, (Hist. Geol.)
MERRILL, G. P., (2), 1920, (State Surv. to 1885)
SAMPSON, 1890, (Bib. Geol.)
SEEVER, 1900, (Mo. Hist. & Phil. Soc.)
WIDMANN, 1907, (Hist. Ornithology)
WINSLOW, 1894, (Hist. Geol. Surv.)
WINSLOW & MARBUT, 1892, (Hist. Geol. Maps)

See also WESTERN STATES; ST. LOUIS.

MISSOURI, (UPPER), REGION.

- NEWTON, 1880, (Hist. Explor.)

MONTANA.

- BLANKINSHIP, 1905, (Bib. & Hist. Bot.)
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NEVADA.

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NEW ENGLAND.

DAY, (1), 1899, (Local Floras)

DAY, (2), 1901, (Herbaria)

HUMPHREY, 1896, (Botanists)

MORSE, A. P., 1920, (Hist. Orthoptera)

See also CONN.; MAINE; MASS.; N. H.; R. I., & VT.

NEW HAMPSHIRE.

BENT, (1), 1911, (Bib. White Mts.)

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NEW HARMONY, INDIANA.

HOLLIDAY, 1914, (Hist. Sc.)

NEW HAVEN.

BALDWIN, 1901, (Conn. Acad. A. & Sc.)

CENTURY, 1918, (Amer. J. Sc.)

DANA, E. S., 1918, (Amer. J. Sc.)

HERRICK, E. C., 1840, (Conn. Acad. A. & Sc.)

KINGSLEY, W. L., 1879, (Hist. Science at Yale)

LOOMIS, E., 1879, (Conn. Acad. A. & Sc.)

PENFIELD, 1901, (Hist. Yale Miner. Cab.)

NEW JERSEY.

BARNHART, (1), 1915, (Local Floras)

BERRY, (1), 1911, (Hist. Flora Raritan Formation)

BLACK, 1916, (Bib. Geol., Min., Pal.)

CLARK, (4), 1893, (Hist. Cretaceous & Tertiary)

COOK, (1), 1864, (Hist. Geol. Surv.)

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NEW MEXICO.

STANDLEY, 1910, (Bib. Botany)

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NEW YORK (CITY)

BARNHART, (3), 1917, (N. Y. Acad. Sc.)

BENJAMIN, (2), 1893, (Hist. Sc.)

BROWN, Add., 1909, (Elgin Bot. Gard.)

- FAIRCHILD, 1897, (N. Y. Acad. Sc.)
 GAGER, (1), 1912, (Linnaean Bot. Gard. at Flushing)
 GAGER, (2), 1918, (Brooklyn Bot. Gard.)
 GRAEF, 1914, (Hist. Brooklyn Entomology)
 HOSACK, 1811, (Elgin Bot. Gard.)
 KELBY, 1905, (N. Y. Hist. Soc.)
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 BECK, 1842, (Hist. Mineralogy)
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 DUDLEY, 1886, (Cayuga Co., Hist. Bot.)
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BURNS, (1), 1919, (Hist. & Bib. Ornith. Chester Co.)
GORDON, 1922, (Hist. & Bib. Mineralogy)
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FAXON, 1915, (Relics Peale's Mus.)

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SCHARF & WESTON, 1884, (Sc. Soc.)

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MILLER, B. L., 1911, (Hist. & Bib. Geol.)

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KLEM, 1914, (Hist. Sc.)

SPAULDING, 1908, (Hist. Bot.)

STARR, 1898, (Acad. Sc. St. Louis)

TRELEASE, (2), 1903, (Acad. Sc. St. Louis)

TRELEASE, (3), 1903, (Mo. Bot. Gard.)

WHELPLEY, 1906, (Acad. Sc. St. Louis)

See also MISSOURI.

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SHATTUCK, (5), 1907, (Hist. & Bib. Geol.)

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FOWLER, 1894, (Essex Inst. & Essex Co., Nat. Hist. Soc.)

MORSE, E. S., (1), 1884, (Hist. Zool.)

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UTAH, see WESTERN STATES.

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COVILLE, 1902, (Early Bot.—Hist.)

GEARE, 1902, (Index Pub. U. S. Nat. Mus.)

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MC ATEE, 1918, (Hist. & Bib. Nat. Hist.)

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POINSETT, 1841, (Nat. Inst. Prom. Sc.)

RATHBUN, (2), 1917, (Columbian Inst. Prom. A. & Sc.)

RATHBUN, (3), 1905, (U. S. Nat. Mus.)

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RHEES, (1), 1901, (Smith. Inst.)

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RICKER, 1918, (Hist. Bot.)

SAUL, 1907, (Tree culture in D. C.—Hist. of)

VASEY, 1886, (U. S. Nat. Herbarium)

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FREMONT, 1887, (Explorations)

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BENT, (1), 1911, (Bibliography)

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